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GLIDDEN LACQUEROID SYSTEM

MOTOR CAR FINISHES



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DEPARTMENT OF THE INTERIOR
UNITED STATES PATENT OFFICE
WASHINGTON

December 12, 1924.

Mr. M.O. Price,
Librarian.

Sir:

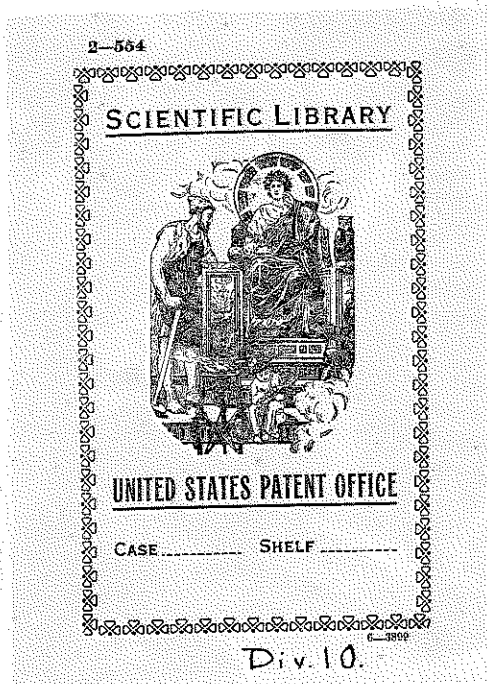
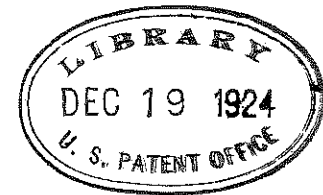
Will you kindly obtain for Division 10
from The Glidden Company, Cleveland, Ohio, a copy
of their booklet "Glidden Lacqueroid System of Motor
Car Finishes" as per the advertisement of that company
on pages 42-43 of Motor Vehicle Monthly, December, 1924?

Respectfully,

Examiner Division 10.



MOTOR CAR FINISHES



THE GLIDDEN COMPANY
NATIONAL HEADQUARTERS
CLEVELAND, OHIO



MOTOR CAR

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FINISHES



NTRODUCTION

In view of the universal desire to own a good looking car, one often wonders why so many automobiles are seen daily with the finish almost completely gone. There are two principal reasons on the part of the automobile owner to account for this condition. One of these reasons is that the owner is unwilling to sacrifice the use of his car long enough to permit of a high-class repaint job. The other is that the average owner believes that repainting is an expensive operation, when in reality it is expensive not to keep a car in a well finished condition, not only because of the loss of prestige due to a shabby automobile, but also because of the inevitable financial loss as the result of rapid depreciation.

Fortunately, both of these objections can be overcome by the use of modern, up-to-date, painting methods. It is now possible to receive a car on Monday and return it on Thursday completely refinished in any color with materials that rival the finish on a new car for looks and that will actually outwear most finishes on new cars.

Glidden's Lacqueroid System of Motor Car Finishes enables the automobile painter to produce the finest finish, for the least money, and in the shortest possible length of time.

THE GLIDDEN COMPANY
NATIONAL HEADQUARTERS
CLEVELAND, OHIO

**THE LACQUEROID SYSTEM
OF MOTOR CAR FINISHES**

THE Lacqueroid System of Motor Car Finishes consists of Primer, Surfacer, Glaze and Colored Enamels, together with the necessary Reducers. All of these materials are of the very highest quality and with the exception of the Primer are built around a very durable nitro-cellulose or lacquer base, hence the name Lacqueroid.

On account of the peculiar make-up of Lacqueroid Finishes they withstand much more abuse than ordinary finishing materials. Heat, cold, mud, grease, road tar, soap, water and friction during cleaning have little or no effect on Lacqueroid Finishes. Cars finished by the Lacqueroid System retain their beauty much longer than those finished with ordinary goods.

All coats in this system are air drying and, as mentioned before, a complete refinish job from the metal up can be completed in four days without any difficulty. This air drying feature eliminates the necessity of maintaining expensive drying equipment required for properly drying ordinary materials in a short length of time and the saving in time naturally means a big saving in floor space, which is usually rather expensive.

The various materials that make up the Lacqueroid System are briefly described as follows:

NO. 75-18 RED AIR DRYING PRIMER

This is an extra durable primer which has been used for years by many of the leading automobile manufacturers. It is composed of red oxide and other suitable pigments ground into a varnish vehicle in such a way that it dries

thoroughly in from 18 to 24 hours to a tough, durable film that resists the solvent action of the following lacquer coats. It adheres to all metals and wood better than any primer on the market. It is especially good for aluminum and steel bodies.

Experiments have been conducted in an effort to make a satisfactory lacquer primer for use under lacquer materials in finishing automobiles, but without much success up to date. Lacquer primers do not adhere to the metal as well as this primer and are likely to chip off when the doors are slammed or the finish is struck with a blunt object. On the other hand, 75-18 Red Air Drying Primer sticks to the metal under all conditions and forms a safe foundation for the finishing coats. After all a finish is no more durable than the priming coat and it pays to use the best.

NO. 75-2 RED LACQUEROID TOUCH-UP PRIMER

Used for touching up small spots rubbed through to the metal during the sanding operation on the surfacer. Dries in two hours.

NO. 75-1½ RED LACQUEROID SURFACER

A quick drying lacquer-pigment combination that fills the imperfections in the metal and builds a safe surface on which the succeeding coats may be applied. It sands to a smooth, impervious surface with a minimum amount of labor and forms a close union between the lacqueroid enamel coats and the primer.

NO. 75-4 RED LACQUEROID GLAZE

Used for knifing into large imperfections. It dries quickly and "feathers out" to a smooth surface when sanded.

NO. 20 LACQUEROID SURFACER REDUCER

Used for thinning No. 75-1½ Red Lacqueroid Surfacers and No. 75-4 Red Lacqueroid Glaze. No other reducer should be used for this purpose.

LACQUEROID GROUND COLORS

Made on the same base as the Colored Lacqueroid Enamels but with increased covering power. When used as a ground coat under the Colored Lacqueroid Enamels the result is a more uniform finish with enhanced richness of tone. Each of the 24 standard shades of Lacqueroid Enamels and White has a corresponding Ground Color. No Ground Color is necessary with Black Lacqueroid Enamel.

COLORS LACQUEROID ENAMELS

These enamels are obtainable in 24 colors besides black and white and may be mixed in any proportion to form an unlimited number of shades. They spray on evenly and level out smoothly, requiring little or no rubbing. They harden quickly to a tough, durable film with good depth of color and may be polished without difficulty.

NO. 24 LACQUEROID ENAMEL REDUCER

Used for thinning lacqueroid ground colors and colored lacqueroid enamels. This reducer is correctly designed to give the necessary good spraying and flowing properties to the ground color and lacqueroid enamels. No other reducer should be used.

TOUCH-UP LACQUEROID ENAMEL REDUCER

Especially designed for mixing with any of the colored lacqueroid enamels so they may be used with a brush for blacking in mouldings, door jambs and instrument boards as well as for touching up any small defects in the finish. It can also be used in connection with any of the Colored Lacqueroid Enamels for striping purposes.

LACQUEROID RUBBING COMPOUND

Used instead of sandpaper, pumice and water, pumice and oil or similar materials for rapidly cutting down the colored lacqueroid enamels to a perfect surface where a rubbed and polished finish is desired. Cuts quickly and leaves no scratches. Cleans off easily.

LACQUEROID POLISH

Used after the rubbing compound when a high polish is desired. Does not scratch or leave a gummy film on the work.

EQUIPMENT AND WORKING CONDITIONS

In the use of all lacqueroid materials it is very essential to have the proper equipment and working conditions to obtain the best results. Due to their rapid drying qualities, all materials with the exception of the primer, the touch-up colors and the striping enamels must be applied with an air brush or a spray gun, as a brush would leave brush marks and other bad features which are objectionable.

THE FINISHING ROOM

The first requisite in the form of equipment is a dry, light, airy room where the ventilation is good but without any direct draughts blowing on the freshly coated work. Cleanliness is advisable, just as when using regular paint materials, although this feature is not so important with lacquers because they are so dry in fifteen minutes that dust which might fall on the work does not stick as in the case of slower drying paint materials.

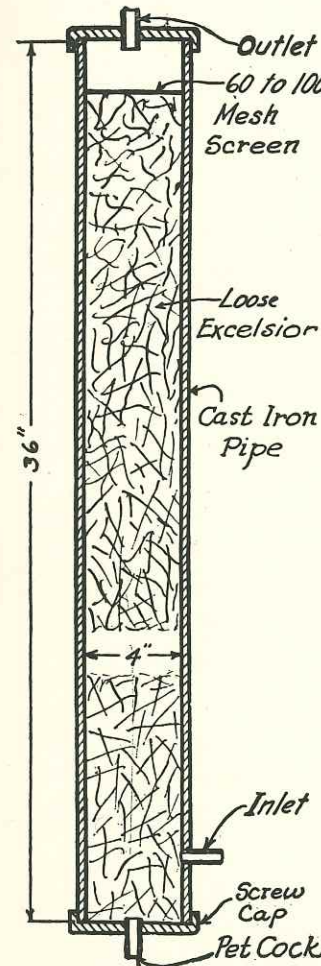
While expensive drying equipment is not necessary to control the temperature and humidity as accurately as in the case of varnish, it is well to have the finishing room well heated at all times to prevent the lacquer materials from becoming chilled and to aid them in flowing out smoothly after they are sprayed on the work. The finishing materials, the finishing room and the automobile body should have a uniform temperature of 70 to 80 degrees Fahrenheit, and under no circumstances should the primer or other coats be applied when the temperature is below 70 degrees Fahrenheit.

COMPRESSED AIR

Most refinishing shops today are equipped with compressed air for inflating tires and for similar work. Such compressed air may be used successfully for applying Lac-

queroid System materials if suitable means are provided for removing the oil and moisture which is frequently present in compressed air. A simple means for doing this is to construct an oil and water separator from a 36 inch length of 4 inch iron pipe in a manner similar to that shown in the accompanying diagram.

The pipe should be threaded at both ends and fitted with screw caps which can be removed when necessary for cleaning purposes. The top cap should have a small pipe running through it to serve as an outlet for the clean air. The lower cap should be fitted with a pet cock that can be opened to drain off accumulated oil and water. The air inlet should be near the bottom of the separator and the outlet at the top as mentioned previously. Clean, dry excelsior should be packed loosely into the separator to break the flow of the air and to help condense and absorb the oil, water and dust. A very fine meshed wire screen should be placed near the



outlet to prevent small particles of excelsior from being carried into the spray line.

This oil and water trap is inexpensive to build and serves the purpose very well. Of course it needs attention occasionally to prevent it becoming filled with oil and water and thus being rendered useless. The pet cock at the bottom should be opened each morning before beginning work and as often as necessary during the day, and the excelsior should be changed whenever it shows signs of becoming saturated with oil and water.

The oil and water separator should be mounted in an upright position on the air line as near the spraying equipment as is practical. There are a number of good oil and water separators now on the market which can be obtained from the various spray equipment manufacturers in case it is not desirable to construct a separator along the above mentioned lines.

If compressed air is not available it will be necessary to install an air compressor large enough in size to give an even flow of air sufficient in pressure for the work in hand. All spray equipment manufacturers, of which there are several, have suitable air compressors either electrically or mechanically driven.

THE SPRAY GUN

Having the compressed air the only other essential equipment is a suitable spray gun with the necessary hose connections and containers, as well as a pressure gauge and a reducing valve for lowering the air pressure when needed. Of this equipment the spray gun is the most important, since it must be so constructed as to furnish an adequate flow of material for rapid coating and yet "break up" or atomize the lacquer fine enough to put it on the work smoothly and free from "orange peel" or "pock mark" effect.

Many of the spray equipment manufacturers have developed special spray guns for use in applying lacquer materials

and the manufacturers should be asked to specify the proper size opening in the nozzle to take care of the particular material being applied. We do not recommend one make of spraying equipment over another but we have investigated the subject very thoroughly and for the convenience of those shops who do not now have spraying equipment we shall be glad to furnish a list of spray equipment manufacturers from whom complete information can be obtained.

THE EXHAUST FAN

We have only one other question of equipment to consider and that is an exhaust fan for changing the air in the finishing room. Whether one should be installed depends almost entirely upon local conditions. If only a few jobs are done and it is not desired to invest money in such a fan, acceptable work can be produced without the aid of a fan. Where the production is greater it is advisable to install one or more exhaust fans in the windows on one side of the room. The working conditions will be more agreeable and the work itself will be better if an exhaust fan is available, since the fumes will be removed more rapidly, thus decreasing the possibility of objectionable overspray settling on the finished work. Suitable fans can be obtained from the spray equipment manufacturers.

REMOVING THE OLD FINISH

Although it is possible to refinish automobiles with the Lacqueroid System without removing the old finish, we cannot too strongly recommend that all of the old finish be removed before beginning the refinishing operations. Frequently the life is gone out of the old paint coats and to finish over them would be like building a beautiful mansion on a pile of sand. Such a beautiful, durable finish as that obtained with the Lacqueroid System deserves to have a solid foundation.

REMOVE DIRT AND GREASE

When the car comes in to be refinished it should first be put on a wash rack and all the mud, dirt, dust and grease washed from the chassis and underside of the fenders and other hard-to-get-at places. This is necessary to insure clean, durable work after the new finish has been started.

Grease and oil should be removed from the springs, spring shackles, rear axle housing and all other places where it may be present. This can be done with gasoline and a stiff fibre brush which is made especially for the purpose and which may be obtained from any good brush supply house.

KIND OF REMOVER TO USE

After this is done the paint should be removed by any of the standard processes usually employed in the refinishing shop. Either caustic solutions or patented paint and varnish removers may be used or the job can be burned off with a blow torch.

In some cities there are paint removing stations where paint as well as mud, grease, and other accumulated materials can be removed by a patented process, using steam and a solvent solution.

The essential point to remember is that *the metal must be absolutely clean* before starting to put on the Lacqueroid System materials. Caustic, grease or wax—which are frequently left on the work from paint and varnish removers—must be entirely removed as all these materials are enemies to lacquer and will spoil the finish. It goes without saying that all rust must be removed from the body before starting to refinish.

WASH WITH BENZOLE

Wax or alkali is most frequently left around the mouldings, hinges and such places as there are cracks or corners. After the paint has been removed, the body should be washed

thoroughly with Benzole. It is a safe precaution to follow this by going around the mouldings, hinges and such places with a blow-torch flame to drive out all moisture, wax or oil that may be present. Where live steam is available, it may be used to advantage also, in cleaning off the body after the old paint has been removed, since it will penetrate the cracks and corners and remove traces of the remover which otherwise might be left behind. Compressed air may also be found of advantage in blowing out seams and such places to remove traces of moisture left by the remover.

REMOVE FENDERS AND PARTS

The wheels, fenders, hood and radiator shell should be taken off and thoroughly cleaned to the metal for the best finish, as it is more convenient and better results can be secured than where these parts must be covered up while the body is being sprayed. They can be finished separately with lacquer materials in the same way as the body, if desired.

Where it is desired to use the Lacqueroid System for finishing baked enamel parts such as fenders, radiator shells and splash pans without removing the enamel, the baked enamel should be sanded thoroughly to give it a "tooth," using fine waterproof sandpaper and water. Following this the parts should be wiped thoroughly with a rag saturated with denatured alcohol. A coat of 75-18 Red Air Drying Primer should be applied as quickly as possible after this alcohol wash and allowed to dry 24 hours. Unless the metal is in bad condition no surfacing coats will be needed and the colored lacqueroid enamel coats can be applied directly over the primer.

HOW TO APPLY PRIMER

Just before applying the primer the body should be sanded all over with No. 180 or a corresponding grit of

sandpaper or emery cloth, to make sure small traces of rust and dirt are removed, and then dusted with a regular painter's duster.

USE BRUSH OR SPRAY

Then apply a coat of 75-18 Red Air Drying Primer either by spraying or brushing. If the spraying method is used the primer should be reduced as follows:

- 3 parts 75-18 Red Air Drying Primer
- 1 part Pure Turpentine

The spray gun and the air pressure should be so adjusted as to give a thin, uniform coating of primer all over the body.

Where it is desired to use a brush for the primer coat the primer should not be reduced quite so much. In this case use—

- 4 parts 75-18 Red Air Drying Primer
- 1 part Pure Turpentine

Use a camel hair or ox hair brush three inches wide and single thick—a so-called “color brush.” In some shops it is customary to use color brushes which have been used for ground and color coats until they are worn too short and stubby for use in color.

APPLY THIN, EVEN COAT

Regardless of which method is used to apply the primer coat it is essential to remember that the coat should be thin, even and uniform—similar to a “color coat” under the old paint and varnish system of finishing. Care must be taken not to “puddle” the primer in spots or it will not dry as thoroughly as it should in those spots.

DRY 24 HOURS

Let the primer dry 24 hours or longer at a temperature of 70 to 75 deg. Fahrenheit with a good circulation of fresh air. In case of necessity the primer can be recoated in 18 hours under good drying conditions, but it is better to let it stand

at least the full 24 hours. If heating facilities are available this drying time can be shortened to an overnight dry if the temperature is held at 110 degrees Fahrenheit or higher during the night.

While the primer is drying and before it is coated with 75-1½ Red Lacqueroid Surfacer the body should not be handled with greasy or dirty hands, since any grease gotten on the work is likely to come through all the coats and result in slow drying as well as an unsatisfactory finish in general.

It is not necessary to sand the primer before applying the first coat of surfacer, unless it is to remove large particles of dirt, a run, sag or similar defect.

HOW TO APPLY SURFACER

When the primer is dry the first coat of 75-1½ Red Lacqueroid Surfacer should be applied by spraying. For this purpose the surfacer should be reduced—

- 1 part 75-1½ Red Lacqueroid Surfacer
- 1 part No. 20 Lacqueroid Surfacer Reducer

The spray gun should be so adjusted as to finely atomize the surfacer and yet give a wet coat on the work when the gun is held 6 or 8 inches from the work and moved in straight uniform strokes over the full length or width of a panel. This coat of surfacer and each succeeding one should dry at least ½ hour before the next coat is applied. The number of coats needed for a given job will depend to a great extent upon the smoothness and freedom from file scratches in the metal. In many cases, two coats will be found sufficient. Where no glaze is used the last coat of surfacer should dry at least 5 hours before sanding.

HOW TO APPLY GLAZE

After the last coat of surfacer has dried at least an hour, the body should be inspected and all holes or exceptionally rough

spots filled in with 75-4 Red Lacqueroid Glaze just as it comes from the package. This is known as "spot glazing." A three inch elastic glazing knife should be used for this purpose, since it will permit the glaze to be applied more smoothly than an ordinary putty knife. The glaze should be pressed firmly into the defect that is being filled and should be smoothed down and "feathered out" as much as possible around the edges where the glaze meets the surfacer so as to reduce the amount of sanding later.

In using a glazing knife one edge soon wears to a bevel and for this reason the same side of the knife should always be placed next to the body. This side will naturally be the beveled side. Care should be taken also to prevent the edge of the knife getting nicks in it so as to put on a smooth coat at all times. It is well also to work the glaze from the middle of the knife as much as possible rather than from the edge and thus prevent the glaze from forming ridges where the corners of the knife pass through it.

FULL GLAZING NOT NECESSARY

It will not be necessary ordinarily to "full glaze" the body—that is, to put a thin glaze coat over the entire body—but where it is necessary to do this it will be found advisable to thin the 75-4 Red Lacqueroid Glaze with No. 20 Lacqueroid Surfacers Reducer until an easy working consistency has been secured. The glaze should not be applied too thin or it will not fill as it should; neither should it be applied too heavily or it may crack and check upon drying. A little experience will show the proper consistency at which to use the glaze for full glazing.

As mentioned previously, it is generally necessary to "spot glaze" only a few holes or rough spots and in many cases it will be possible to rub three coats of surfacer to a good, smooth surface without the use of any glaze. On other jobs, however, there may be spots which will need to be

glazed a second time. Each coat of glaze should dry at least 5 hours before the next one is applied or before the sanding operation.

HOW TO RUB SURFACER

After the last coat of surfacer or the glaze has dried at least 5 hours, the body should be surfaced by rubbing first with No. 180 and finishing off with No. 220 or a corresponding grit of waterproof sandpaper. Plenty of water should be used and the paper and work kept thoroughly wet while rubbing. The cutting surface of the paper should be kept clean by rinsing it frequently with clear water.

Use long, sweeping strokes rather than short, choppy ones. We do not recommend the use of a rubbing block on which to mount the paper because of danger of rubbing through in high spots and sharp corners. There is also more danger of the cutting surface becoming gummed and scratching the surface when a block is used.

After a suitable surface has been obtained, wash the job thoroughly with clean water.

After the body has dried off—at least an hour should be allowed—any rubbed-through spots where the metal shows should be touched up with 75-2 Red Lacqueroid Touch-up Primer used just as it comes from the package if applied with a small camel hair or ox hair brush. If the spots are large it may be advisable to touch them up with the spray gun, in this case reducing the touch-up primer as required with No. 20 Lacqueroid Surfacers Reducer. These touched-up spots should dry at least 2 hours before the next operation.

It is advisable to dry-sand the entire body lightly with No. 280 or an equivalent grit sandpaper just before applying the lacqueroid enamels to eliminate any scratches that may have been left in the surface by the coarser sandpaper during the rubbing operation and to smooth down any spots which may have been touched up. Following this the body should

be dusted off with a soft cloth or a regular duster and then wiped clean and free from lint with a "tack rag."

HOW TO MAKE A TACK RAG

A suitable tack rag may be made by saturating a clean cheesecloth with Glidden's Tack Rag Varnish or with a finishing varnish and then wringing out the excess. Allow the varnish to become partially dry so it is slightly tacky, when it will pick up all dirt or lint with ease. When not in use the tack rag should be rolled into a wet cloth to prevent it from hardening entirely.

HOW TO APPLY LACQUEROID GROUND COLOR

For the very best results, one coat of Lacqueroid Ground Color reduced equal parts with No. 24 Lacqueroid Enamel Reducer, should be applied by spraying, after the work has been rubbed to a smooth surface. While acceptable results can be secured in many instances without the use of a ground color, it has been found that the use of a ground color, especially on certain of the more transparent shades such as blues, maroons and yellows, gives more solid covering and makes it easier to produce a uniform color.

The method of application is the same as explained in detail in the instructions on "How to Apply Colored Lacqueroid Enamels." Care should be taken to see that the coating is put on uniformly, for if the coating is thinner in some spots than in others, much of the advantage to be gained by the use of a Ground Color is lost.

The Lacqueroid Ground Color should be allowed to dry one hour before applying the Colored Lacqueroid Enamel.

HOW TO APPLY COLORED LACQUEROID ENAMELS

Two or three coats depending upon the finish desired and color used of Colored Lacqueroid Enamel should be sprayed on after the Ground Color. For the first coat the

Lacqueroid Enamel should be reduced

1 part Colored Lacqueroid Enamel

1 part No. 24 Lacqueroid Enamel Reducer

An hour after this first coat of Colored Lacqueroid Enamel has been applied a second coat and a third if needed, containing less Lacqueroid Enamel should be applied. This second and third coat should be reduced

2 parts Colored Lacqueroid Enamel

3 parts No. 24 Lacqueroid Enamel Reducer

While the above recommendations will give a good job a still better finish from the standpoint of smoothness and high lustre can be obtained by using even thinner coats of Colored Lacqueroid Enamel for the last one or two coats. Sanding between the coats of Colored Lacqueroid Enamel while not necessary, will reduce the amount of rubbing later. It is sometimes advantageous to follow the next to the last coat immediately with the last coat without waiting for the usual one hour interval. This gives a little smoother job. Not more than two coats should ever be applied one immediately after the other, however.

It is considered good practice where the highest type finish is desired to rub with pumice stone and water or with waterproof sandpaper before the last coat is applied to even up the surface. After the last coat is dry it can be rubbed lightly and polished or left in the velvet finish as desired.

METHOD OF SPRAYING IMPORTANT

It is during the application of the lacqueroid enamel coats that the spray gun and its operator exerts the greatest influence as to the looks of the final job. The gun should be of such construction that it atomizes the lacqueroid enamel very finely, yet allows a sufficient quantity to leave the nozzle to cover the work rapidly with a wet, uniform coat. The gun and the air pressure should be adjusted until the lacqueroid enamel is broken up finely enough, but not so fine as to cause the vapor to dry before it strikes the work. A

little experience will show what is the proper adjustment.

The cowl and deck and the fenders, if they are left on the car, should be covered with heavy canvas or similar material, while the remainder of the body is being coated to prevent the overspray from settling on them.

The spray gun should be held six to ten inches from the work (a little closer than for paint materials) so the enamel goes on properly, and the operator should use even, swinging strokes over the entire length or width of a panel rather than spraying with a circular or uneven motion. The gun must be held approximately the same distance from the work at all times or the coating will not be uniform. The stream from a spray gun is usually thinner on the edges than in the center and for this reason it is advisable to overlap the spray about half the width of the stream. The coats should be cross-sprayed, one horizontally, the next perpendicularly.

PRACTICE MAKES PERFECT

An operator who has not used lacquer materials before should practice on a large panel or some other worthless object before starting to spray a body, as lacquer materials must be applied a little differently than paint materials. A few minutes of practice, once the knack of the thing has been caught, will soon show what points to look out for, while a whole book of printed instructions would not make an expert spray man.

The last coat of colored lacqueroid enamel should dry overnight and the car is then ready to reassemble and run out of the shop, if the satin finish is desired. If a higher luster is wanted it will be necessary to rub and polish the body as explained a little later.

HOW TO DO A TWO COLOR JOB

On closed cars or where two colors are used, it is advisable to cover the windows and doors with paper to prevent the finishing material settling on the glass. Apply all coats



after the surfacing operation on the lower panels first, taking care to get no more of the over-spray from the Ground Color and Lacqueroid Enamel on and above the moulding than is unavoidable. After the last coat has dried at least an hour and preferably longer than this, a strip of heavy wrapping paper or several thicknesses of news-paper should be pasted tightly against the lower edge of the moulding, using adhesive tape or a vegetable library paste. This prevents the over-spray from settling on the lower panel.

After all ground color and enamel coats have been applied to the lower structure the paper can be removed by soaking it with water and a sponge. If adhesive tape is used all traces of the adhesive should be washed off with gasoline.

If it is not desired to leave the moulding in the same color as the lower structure, it can be coated by brushing Lacqueroid Ground Color followed by Lacqueroid Enamel of the desired shade, both reduced to proper consistency with Touch Up Lacqueroid Enamel Reducer. The door jambs and other such parts can also be coated by the same process at this time, if they have not been coated during the other finishing operations.

HOW TO RUB AND POLISH LACQUEROID ENAMEL

When a higher luster than that naturally given by the lacqueroid enamel is desired, it is necessary to rub and polish the last coat after it has dried at least overnight. Rub the body with Lacqueroid Rubbing Compound used generously on a folded pad made of clean burlap. Wet the burlap in water and wring out the excess before applying the rubbing compound. No rubbing block should be used because of the danger of cutting through on high spots or sharp edges. The rubbing should be continued in straight, even strokes the same as in rubbing varnish until the desired surface is

obtained. As a rule it is better to rub lengthwise of the body. The hood should be rubbed in the same direction so that it will match the body as closely as possible.

In case it is preferred to use sandpaper for surfacing the lacqueroid enamel we suggest the use of No. 400 or corresponding grit waterproof sandpaper using a mixture of—

3 parts Raw Linseed Oil
1 part Gasoline.

This mixture will cut to a surface quicker than water but water can be used if desired.

We recommend the use of Lacqueroid Rubbing Compound, however, since it cuts just as fast and has the advantage of leaving fewer scratches. It also eliminates the necessity of removing the slush formed by the use of sandpaper and oil. The compound has another advantage, in that it is always ready for use and is not likely to burn the finish as would be the case if not enough lubricant were used on the sandpaper.

TOUCH-UP SPOTS

After the entire body has been well surfaced it should be wiped dry with a clean piece of cheesecloth and any rubbed through or off color spots touched up with a mixture of the proper lacqueroid enamel reduced to brushing consistency with Touch-up Lacqueroid Enamel Reducer, using a small ox hair sign writer's brush. Where oil has been used for rubbing, the surface should be washed with Benzole before touching up. Where the spots are large it is better to spot-spray the rubbed through spot and then recoat the entire panel with the spray gun, using the same lacqueroid enamel as used on the last spray coat. Let these spots dry overnight before rubbing and polishing.

HOW TO STRIPE

When it is desired to stripe the body, this can be done immediately after the rubbing operation by reducing any of the Colored Lacqueroid Enamels of the desired shade to

striping consistency with Touch-up Lacqueroid Enamel Reducer, or with regular Japan Color, reduced with a long oil finishing varnish and turpentine to good striping consistency. A soft striping pencil of the proper size to give the desired width of stripe should be used and the stripe should be put on with one straight stroke, if possible, as the less the stripe is disturbed after it has once been applied the better will be the results.

If a lacquer stripe is used, allow it to dry one hour or longer before polishing with Lacqueroid Polish. If the striping has been done with Japan Color, at least six hours should be allowed before the polishing operation.

POLISH BRISKLY

Now polish the entire body with Lacqueroid Polish using it on a pad of clean, dry cheesecloth from which the size has previously been washed. Rub briskly with straight, even strokes in much the same way as varnish would be rubbed. Continue rubbing until the desired polish has been obtained.

Now take a clean pad of cheesecloth, prepared as before, and rub dry. A third pad of clean, soft cheesecloth can now be used to finish cleaning off the work. It is essential that the final polishing be done with a clean cloth.

REFINISHING THE CHASSIS

The chassis can quickly and easily be refinished by spraying one or two coats of Black Lacqueroid Enamel reduced equal parts with No. 24 Lacqueroid Enamel Reducer before the body has been rubbed. Of course it is necessary that all oil and grease be removed before this operation and it is well to cover up the body while doing the work to prevent any overspray settling on the finished job. Parts which cannot be sprayed easily can be brushed with Black Lacqueroid Enamel reduced as required with Touch-up Lacqueroid Enamel Reducer.

TIME REQUIRED FOR COMPLETE JOB

First Day: Take off removable fittings including fenders and hood. Clean grease and oil from chassis, remove all old paint from body and sand with No. 180 or corresponding grit sandpaper. Be sure all alkali or wax from the remover has been eliminated, especially around hinges and mouldings.

Spray or brush one thin, even coat of No. 75-18 Red Air Drying Primer reduced four parts primer to one part turpentine for brushing or three parts primer to one part turpentine for spraying.

Second Day: Spray two, three or as many coats as needed of 75-1/2 Red Lacqueroid Surfacer reduced equal parts with No. 20 Lacqueroid Surfacer Reducer allowing at least one-half hour between coats.

Spot glaze holes and rough spots where necessary, not sooner than one hour after the last coat of surfacer, using No. 75-4 Red Lacqueroid Glaze full body. Let dry at least five hours before rubbing.

Third Day: Sand to a surface, starting off with No. 180 and finishing with No. 220 or corresponding grit waterproof sandpaper, using plenty of water as a lubricant.

Touch up any rubbed-through spots with No. 75-2 Red Lacqueroid Touch-up Primer and allow these spots to dry 2 hours; then dry sand to a smooth surface with No. 280 sandpaper.

Spray one coat of Lacqueroid Ground Color of the proper shade reduced equal parts with No. 24 Lacqueroid Enamel Reducer, let dry one hour and follow with two or three coats of Colored Lacqueroid Enamel at one hour intervals reduced equal parts with No. 24 Lacqueroid Enamel Reducer except the final coat which should be reduced at the rate of two parts of enamel to three of reducer. The last coat should dry at least twelve hours before rubbing and polishing. If a two color job is being done, one of the colors

may have to be sprayed on the fourth day thus delaying delivery of the finished car until the fifth day.

Fourth Day: If a high lustre is desired, rub to a smooth surface with Lacqueroid Rubbing Compound used on a moist burlap pad. Stripe with colored Lacqueroid Enamel of the desired shade, reduced to a striping consistence with Touch-Up Lacqueroid Enamel Reducer, or with ordinary Japan Color reduced with a long oil finishing varnish and turpentine.

Spray one or two coats Black Lacqueroid Enamel on chassis, allowing one hour between coats.

Replace Fittings.

Drive out of shop.

REPAIRING AND RETOUCHING THE FINISH

Small damaged spots caused by accidents during shipment or by other causes may be quickly and easily repaired on automobiles finished with lacquer by using Lacqueroid System materials. Lacqueroid materials should not be used for touching up the finish on bodies finished with ordinary paint materials.

EACH CASE A SEPARATE PROBLEM

It should be understood that it is not possible to tell in printed words the exact manner in which a given job may be repaired. In actual practice each car that is to be retouched will probably be found to be a case of its own and to need a little different treatment from that given the finish of another car. In most cases it will be found advisable to coat over the entire damaged panel rather than to try to touch up only the damaged spots; although spots which are not too large may sometimes be repaired by an experienced workman without coating the entire panel. The man in charge of this touch-up work at each shop will have to use his own judgment as to the best method of handling each individual case. However, we are giving in these

instructions points which will serve as a guide in this work.

Due to the quick evaporation nature of the solvents used in Lacqueroid materials all containers should be tightly covered when not in use. In all cases Lacqueroid materials must be applied by spraying, except when the spot is very small, in which case a soft haired brush may sometimes be used to advantage.

In repairing bad scratches or "dings" where the finish is off down to the metal, the finish should be rebuilt with No. 75-2 Red Lacqueroid Touch-up Primer, No. 75-1½ Red Lacqueroid Surfacer, No. 75-4 Red Lacqueroid Glaze, Lacqueroid Ground Color and Lacqueroid Enamel of the proper color used in the same manner as though the body were being finished complete as described on pages ten to twenty-one inclusive.

CLEANLINESS ESSENTIAL

Before starting this operation it is wise to block off the damaged panels from the remainder of the body by pasting at least six inch strips of heavy wrapping paper around the entire panel as explained on page twenty. This will prevent the dried spray dust from settling on the undamaged portion of the body. The entire panel should also be washed thoroughly with Benzole before starting the repair to make sure that all wax, grease or other foreign materials have been removed.

When the finish is not off all the way to the metal it may be possible to repair the damaged spot without using all the coats needed to bring up the entire finish. For example, if the primer is still intact and the damaged spot is not too large, it may be possible to do the repair by putting up the scratch with No. 75-4 Red Lacqueroid Glaze sanded down smooth after drying and then followed by one coat of Lacqueroid Ground Color and two or more coats of the proper shade of Lacqueroid Enamel. In other cases it

may be necessary to use No. 75-1½ Red Lacqueroid Surfacer first, followed by the other coats in their regular order.

THE USE OF A MASK

In repairing small scratches through the top coats of Lacqueroid Enamel only but not into the Surfacer coats it is sometimes possible to use to advantage a mask prepared by cutting a hole in a piece of heavy paper so the hole will be just a little larger than the scratch to be repaired. By holding this mask tightly over the damaged spot one or more heavy coats of colored Lacqueroid Enamel may be applied at proper intervals to bring up the finish flush with the surrounding surface.

The mask will allow the Lacqueroid Enamel to go in the shallow scratch but will prevent the overspray from collecting on the surrounding surface. It is impossible to remove this overspray without recoating the entire panel, therefore it is highly important to use the mask when coating only a small spot.

While spraying the Lacqueroid materials in repairing damaged places it will sometimes be found advantageous to adjust the spray gun so it gives a round spray rather than a flat fan-shaped one. The gun should be held the right distance from the work to build up a proper coating without sags or runs.

THE USE OF A BRUSH

With experience it is sometimes possible to repair small defects in the color coats by touching them with the proper shade of Lacqueroid Enamel which has been reduced to the right consistency with Touch-Up Lacqueroid Enamel Reducer using a very fine red ox hair sign-writer's brush for this purpose. Such a brush should have the bristles rubber-set to prevent them being loosened by the lacquer solvents. This method should not be used except on very small spots and then only after considerable practice.

RUB AND POLISH REPAIRED SPOT

After any of the above methods have been used to bring up the surface to its original condition it is necessary to rub and polish the repaired spot and as much of the surrounding surface as may be required to give the repaired part the same finished look as the remainder of the body. Instructions for rubbing and polishing will be found on pages twenty-one to twenty-three inclusive.

When the finish has been only slightly marred it is sometimes possible to repair the damage without applying any lacquer coats by rubbing with Lacqueroid Rubbing Compound until the mar has disappeared and finishing up with Lacqueroid Polish. Care should be used to rub no greater area than necessary.

A little practice will soon teach one just what steps are advisable to repair any given damaged place so the repaired spot can hardly be found on the completed job.

THE LACQUEROID SYSTEM OF MOTOR CAR FINISHES is the result of years of experimental and practical work and is the most complete system for finishing automobiles with lacquer materials now on the market—consisting as it does of every necessary material for bringing up a complete finish from the metal out and embracing everything from the primer to the polish and striping enamels. Each material has been chosen for its particular use after a long series of practical tests and will be found better suited for that particular purpose than any other product on the market. The materials as a whole dovetail into each other so as to form a complete, homogeneous finish of lasting beauty.

The Glidden Company have been makers of quality paint and varnish products especially designed for the automobile manufacturing and refinishing trade since the beginning of

that industry and during that time have naturally been called upon to solve many problems and have gained much knowledge which it has not been possible for other manufacturers to acquire.

All of this experience combined with the latest knowledge of lacquer manufacture has been put to good use in designing and manufacturing the Lacqueroid System of Motor Car Finishes and the result is a correctly designed system which has no equal in whole or in part for the finishing of automobiles.

The colored lacqueroid enamels in the Lacqueroid System are obtainable in 24 standard shades, besides black and white. The shades are live ones which are especially suited for refinishing motor cars today when the demand is so strong for individual colors. It will also be noted that the colors have been so selected as to make it possible to paint closed cars in a variety of two toned effects, with a darker shade for the upper portion than that used on the lower panels. Two or more of any of the colors, including black and white, may be blended together in any proportion to produce an unlimited number of shades and tints.

Write us for further details and for answers to any questions that may be in your mind.

THE GLIDDEN COMPANY

NATIONAL HEADQUARTERS
CLEVELAND, OHIO

IN CANADA—THE GLIDDEN COMPANY, LTD., TORONTO, ONTARIO

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In addition to the Lacqueroid
System of Motor Car Finishes
The Glidden Company manu-
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and varnish materials for finish-
ing automobiles, consisting of—

Primers
Surfacers
Hard Putty
Rough Stuff
Japan Colors
Chassis Black
Glazing Putty
Ground Colors
Gear Varnishes
Color Varnishes
Striping Enamels
Finishing Varnishes
Top and Seat Dressing
Clear Rubbing Varnishes
Hood and Fender Black Enamel

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